

An investigation into factors that may affect the long term environmental and economic sustainability of tourism in northern Australia

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Table of Contents

List of abbreviations and acronyms	1
Executive summary	2
1. Introduction	3
2. Study context	5
Limitations	5
Relationship between the past, present and future	6
Study region	7
The global context	7
The national context	8
The study region	8
Questions that arise from visitor patterns in the period 1999 to 2012	15
Externalities and change	15
Comparative and competitive advantage	16
The need for a new approach to dealing with crisis and disaster events	17
3. Research approach	17
Step one: Review of previous research	18
Public sector	18
Academic research	19
Observations	20
Step two: Environmental scanning	21
Case Study 1 Climate Change	25
What we know about the possible effects of climate change	25
What we don't know about the effects of climate change	26
Impact at destination level	27
Case study 2 Impact of rising oil prices	28
Observations	30
Step three: Tourism industry stakeholder views	30
Environmental sustainability	31

General concerns about the tourism product of the region	32
Economic sustainability	33
Defining the long term	35
Climate change.....	35
Research needs	35
Observations.....	36
Summary of research findings	37
4. The relationship between change and the future.....	38
Change	38
Future.....	40
Shaping the future	40
5. Meeting the challenges of the future.....	41
The way forward	43
Conclusions	43
About the author.....	44
Acknowledgements	44
References	45

List of abbreviations and acronyms

AUD	Australian Dollar
COTS	Crown of Thorns Starfish
CRC	Centres of Research Excellence
FNQ	Far North Queensland
GBR	Great Barrier Reef
GFC	Global Financial Crisis
GHG	Green House Gas
IPCC	Intergovernmental Panel on Climate Change
MTSRF	Marine and Tropical Science Research Facility
NATO	North Atlantic Treaty Organization
NT	Northern Territory
SARS	Severe Acute Respiratory Syndrome
TNQ	Tropical North Queensland
TTNQ	Tourism Tropical North Queensland
VFR	Visiting Friends and Relatives
WA	Western Australia

Executive summary

The objective of this paper is to identify factors that may affect the long term environmental and economic sustainability of tourism in northern Australia. The paper does not suggest a set of recommendations about specific actions to deal with the future but does offer observations about how the tourism industry can respond to the challenges that the future will generate.

A three stage research methodology was employed commencing with a literature review of past reports and academic research followed by an environmental scan to identify major factors that may affect the study region in the future and concluding with interviews with stakeholders from across the study region. The paper reviews a wide range of factors including the impact of long term structural changes, ongoing evolution of consumer demands for tourism experiences, changes in source markets and climate change.

The paper concludes with a discussion on how the tourism industry in the study region could respond to the issues raised in this research.

The following points summarise the major findings of this research:

- Between 1999 and 2012 there was no growth in the tourism industry in the study region (2013 data was not considered).
- There is no substantive evidence to suggest that the study region's natural environment is being used in an unsustainable manner by the tourism industry.
- This situation may change in the long term if the impact of climate change reduces the resilience of the region's ecosystems.
- The long term economic sustainability of the region's tourism industry is being adversely affected by the growing mismatch between consumer demand and what the region has chosen to supply.
- In the long term, continued over reliance on the region's ecosystems as the main pull factor to attract tourists is likely to lead to low or no growth.
- New investment targeted at new markets and offering new experiences will be required to overcome the stagnation experienced in the period between 1999 and 2012.
- There is little evidence that stakeholders realize the need for new activities and experiences to augment the study region's current suite of environmental experiences.
- The ongoing health of the region's tourism economy is closely tied to the health of the region's ecosystem.

1. Introduction

The objective of this paper is to examine a range of factors that may affect the long term environmental and economic sustainability of tourism in northern Australia. Sustainability is defined as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (World Commission on Environment Development, 1987). This statement, while broad and lacking precision, does provide a platform from which to consider how tourism can be developed into the future. In the context of this paper, environmental sustainability is described as the use of the study region’s natural ecosystems (including deserts, savannah, coral reefs, wetlands, forests and arid areas) as tourism attractions in a manner that does not lead to their long term ecological decline. As will be highlighted later, a definition of this nature poses specific problems in an era when ecosystems are under pressure from human interventions including agriculture, urbanisation, mining and from climate change. Economic sustainability is broadly described as the ability of the tourism industry to operate profitably over the long term in a manner that maximises both its comparative and competitive advantages to develop a high level of competitiveness. The long term, as discussed in this research is defined as 20 plus years.

In any tourism destination the relationships between the demand and supply of tourism services are continually changing for a plethora of reasons including changing consumer tastes, innovation, changes in the cost and quality of inputs, the regulatory environment, changing elasticity of demand, environmental factors, political changes and destination image. In the tourism industry all destinations face the ongoing task of matching consumer ‘push’ factors (demand-side factors that include the desire to travel, income, travel preferences etc) with destination ‘pull’ factors (supply-side factors that include price, quality and range of experiences on offer, security etc). When a mismatch occurs, for example when a destination fails to respond to changing consumer demand (i.e., change in push factors) by adjusting its pull factors, or where the destination becomes uncompetitive, tourism demand will plateau or fall. Arresting a decline of this nature will generally require the development of new markets, adjusting product offerings, attracting new investment and encouraging innovation. Several new projects in the Cairns region (Aquis Resort¹ and Ella Bay Resort) exemplify the type of investment required to reignite tourist demand in the study region.

¹ At the time the research for this paper was undertaken the Aquis Resort (Fung, 2013) proposal valued at \$4.2billion and proposed for Yorkeys Knob, Cairns had not been announced. On 1 November 2013 the EIS for the project was submitted to the Queensland State Government. Given that the project has yet to be approved and is not scheduled for completion until 2018 its full impact is some years away. If approved, the project will provide a very large stimulus to both the tourism industry and other areas of the local economy requiring careful management of impacts on the tourism sector and the host community. The impacts can be expected to parallel those experienced during the rapid growth of Japanese investment during the 1980s and will provide similar opportunities for investment, innovation and refreshing the region’s existing tourism infrastructure.

Other projects proposed for the Cairns region including the Ella Bay Resort can also be expected to generate a new phase of tourism growth.

Over the past 30 years the tourism industry in northern Australia has developed an impressive catalogue of nature-based experiences but the markets they were originally built to serve have changed and new groups of consumers have taken their place, often with demands for experiences and services that simply did not exist in the past. To illustrate, the initial stage of expansion of Cairns into the international market was primarily targeted at the Japanese market in addition to Europe and the US. The infrastructure built to service these markets still exists but the markets have changed dramatically. The total number of Japanese visiting Cairns in 2012 was 86,000, down from the 2006 high point of 251,000. In Alice Springs leisure visitor numbers have declined by more than 40% between 1999 and 2011 (Carson, Carson, Cartan, & Vilkinas, 2012). Visitor numbers for both Kakadu and the Great Barrier Reef (Great Barrier Reef Marine Park Authority, n.d.) have also been declining for a number of years. These examples demonstrate how rapidly markets change in terms of arrival numbers and demand for specific types of experiences.

Looking into the future, further changes will occur and may include anticipated and unanticipated global scale events, new demand and supply side opportunities, changes in the environment and changes in government policy. Anticipated events in the future include population ageing in many of Australia's key markets, changes in the composition of key markets, continuing growth in new outbound markets in Asia and elsewhere, changing demand for tourism experiences, the emergence of the 'experience' economy and climate change. Unanticipated or difficult to forecast events may include further disruptions to the international economy, pandemics, political turmoil, natural disasters and events that we currently have no forewarning about.

The health of the environment, not just as a tourism resource but as a key life support mechanism for all living things, is likely to become of increasing concern as the global population continues to grow, climate change driven impacts accelerate (IPCC, 2013), global urbanisation rates continue to climb and there is a growing realisation that an unhealthy environment can have a significant adverse impact on individual and community health. How governments, consumers and the private sector respond to these and other factors will have a significant impact on the future success of the tourism industry in the study region.

Over the last 13 years (1999-2012) northern Australia's tourism industry has not grown as illustrated in Figures 2 to 5. This pattern reflects the wider national trend highlighted in the Jackson Report (Commonwealth of Australia, 2009, p, 11) which observed that "Australia's share of global tourism has actually declined from around 0.7 per cent in the mid-1990s to around 0.6 per cent in 2008, which is a 14.3 per cent reduction in our share of global tourism". With hindsight the causes appear to include an uncompetitive product, high value of the Australian dollar, impacts of global events such as the Global Financial Crisis (GFC) and swine flu, structural issues within the industry, the failure to retain key markets such as Japan, a growing number of new destinations, and not offering the types of experiences now being demanded by tourists.

Given the extent of the unanticipated changes that have occurred in the last thirty years it is imperative that the tourism industry looks forward into the next two decades to identify issues that

may impact on the viability of the study region's tourism industry, both in environmental and economic terms. The purpose of this paper is therefore to identify factors that may affect the long term environmental and economic sustainability of tourism in northern Australia. Given that the future has yet to occur and is likely to be affected by forces that may not be apparent at this point in time the paper does not seek to develop a set of recommendations about specific actions to deal with the future but does offer some observations about how the tourism industry can respond to the challenges that the future will generate.

2. Study context

The following discussion outlines limitations associated with this research and provides a theoretical context for the study based on the relationships that occur between the past, present and future. The discussion then reports on recent and forecast trends in global and national tourism flows and examines arrivals and activity data in the study region before briefly discussing a small number of factors that will influence the study region's long term environmental and economic sustainability.

Limitations

The range of factors that could be considered in a paper of this nature are enormous, complex and multi-jurisdictional and for these reasons many are beyond the immediate scope of this research. Key limitations that have limited the scope of this research are:

- The future is difficult to predict thus the observations outlined in this paper highlight factors that at the time of writing appear to have some capacity to influence future events.
- No attempt is made to give predictions of the future.
- Results are based on data collected in 2012 and early 2013. As a result, the potential impact of the recently announced Aquis Resort project in Cairns and shelving of the James Price gas hub in Broome were not included in the discussions reported upon in Section 3.
- It is very likely that many of the factors that will, in the future, shape the study area are not identified in this paper, such is the nature of the future.
- Many of the factors dealt with in this paper were not identified by previous reports that examined future trends concerning northern Australia and have therefore escaped scrutiny in the past.
- The post resources economy will require numerous policy responses by state and federal governments. While this factor is likely to be a key driver of change in many areas of the national economy, this paper will not attempt to identify specific responses.

Relationship between the past, present and future

While this paper has a specific focus on the future, it is useful to look into the past to identify issues that may resurface, albeit in a different form, and impact on the future. The GFC, for example, is only the latest of a number of economic crises that have affected the tourism industry. Given that it is possible to learn lessons from the past, this paper uses the relationships that exist between the past, present and future illustrated in Figure 1 as a lens to identify the type of events that may lie in the future and that are likely to affect the study region as well as the global tourism industry.

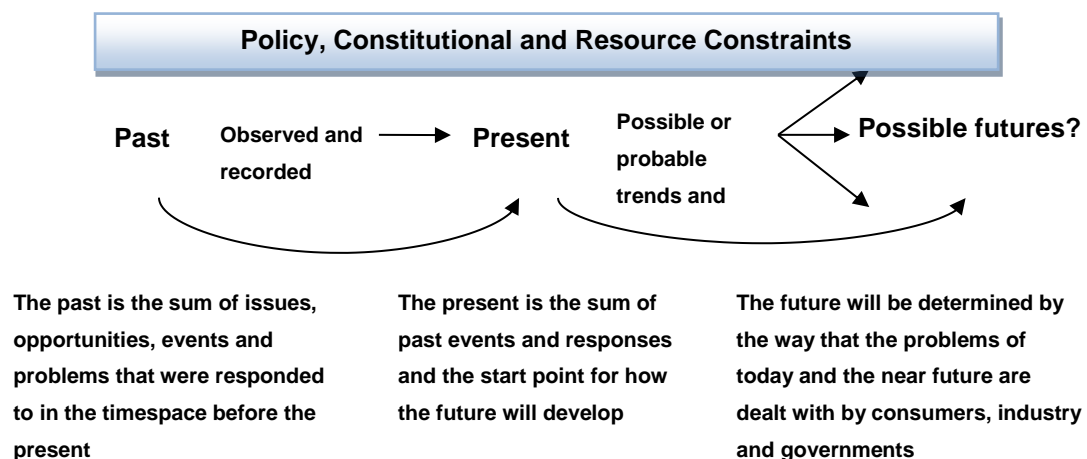


Figure 1. The relationship between the past, present and future in linear time

Source: Adapted from Prideaux (2009)

Figure 1 presents a simplified view of the relationship between the past, present and future and argues that the present is the sum of how policy makers, the private sector and consumers responded to the issues, opportunities, events and problems of the past within the policy and resource restraints that have shaped these responses. In a similar manner, the future will be determined by the manner that today's decision makers deal with the problems of today and those that may arise in the near future. Given that there are multiple options for dealing with a particular problem or suite of problems, there is an opportunity for multiple futures. This observation indicates that although the decisions made in the present are able to influence the future, our control over future outcomes is often limited. For example: policy may have unexpected outcomes; unanticipated shocks may affect the tourism system; or, a new innovation may create a significant disruption in tourism markets.

Study region

Northern Australia is a vast area covering three states and numerous Local Government Areas. Defining the parameters of the study region entailed making an arbitrary decision on the size of the area to be investigated. After some consideration it was decided to delimit the study area as the region from Broome north in Western Australia (WA), all of the Northern Territory (NT) and Tropical North Queensland (TNQ) (defined by Tourism Queensland (2009) as the area that includes Cassowary Coast Regional Council in the south, north to Torres Strait Island Regional Council and west to Burke Shire Council and including Carpentaria, Croydon and Ethridge Shire Councils). Because of political structures the study region can be regarded as having three sub-regions: the north of Western Australia; the Northern Territory; and Tropical North Queensland.

From the perspective of most tourists each of the study region's three sub-regions are seen as separate destinations. The same perspective is apparent at the state level where control is excised from state capitals located in the south; the exception being the NT which is administrated from Darwin. This view of the study area is also reflected in the responses to the semi structured survey reported on later in the paper.

One consequence of the current policy environment is that there is limited interstate cooperation and limited understanding of the specific issues facing the study region. Centralisation of decision making by the public sector and many firms in the private sector contributes to this problem.

The major tourist destinations within the study region are Cairns in Queensland, Darwin and Alice Springs in the Northern Territory and Broome in Western Australia. There is, of course, significant tourism activity in other smaller destinations in each region. Travel to the study region is generally by air, particularly for international and interstate tourists and in many cases for intrastate tourists. Drive tourism is also a major market sector with tourists travelling intrastate as well as interstate. Relatively few tourists travel by rail, coach or sea.

The global context

In the past three decades a number of factors have generated significant changes in both the supply and demand sides of the tourism industry including: rapid economic growth in many developing nations; the growth of low cost carriers; the emergence of the internet and the World Wide Web; the rapid growth of new tourism experiences such as wellness tourism; the spectacular growth of Chinese outbound tourism; the emergence of new markets in South America and Eastern Europe; unexpected economic and natural crises; the increasing importance of the experience economy and the emergence of numerous new destinations in Asia and beyond. Despite a range of crisis and disaster events global tourism arrivals have continued to increase.

During the period between 1999 and 2012 international arrivals increased by 165% from 627 million to 1.035 billion (UNWTO, 2013). This pattern of growth is forecast to continue for some time. In a recent United Nations World Tourism Organisation (UNWTO, 2011) report global tourism arrivals

were projected to increase from 940 million in 2010 to 1.8 billion by 2030. Between 2010 and 2030 the share of international tourism received by the Asia Pacific region is forecast to increase from 22% to 30% while the number of outbound tourists from the region will grow from 204 million to 541 million. A similar picture of growth is found in a recent Boeing study that predicted that global commercial aircraft numbers will rise from 19,410 in 2010 to 39,530 by 2030 (Boeing, n.d.). In the Asia Pacific region, Boeing forecasts an increase in commercial aircraft numbers from 4,410 in 2010 to 13,480 in 2030, a 306% increase.

The national context

The *National Long term Tourism Strategy* launched in 2011 couched its 2020 objectives in terms of total visitor spend figures (Australian Government, 2011). From a 2011 base of AU\$70 billion spent by overnight domestic and international visitors the strategy has a growth target of between AU\$115 and AU\$140 billion by 2020. In a 2012 report on the strategy, total spend had increased to AU\$77 billion, a figure on the lower end of the 2020 growth trajectory. This increase was based on a 2.5% increase in international arrivals and a 6% increase in domestic trips.

The study region

Figures 2 (TNQ), 3 (Darwin), 4 (Alice Springs) and 5 (Broome) highlight the long term trend for tourism (1999 to 2012) in the study region and illustrate a pattern of either no growth or decline. During the same period global tourism arrivals increased by 165% indicating a significant decline in the international market share of each of the study region's destinations. Tables 2 to 5 show yearly patterns of domestic and international tourism activity and are overlaid with a graph that shows the percentage change in international tourism activity on a year-by-year basis.

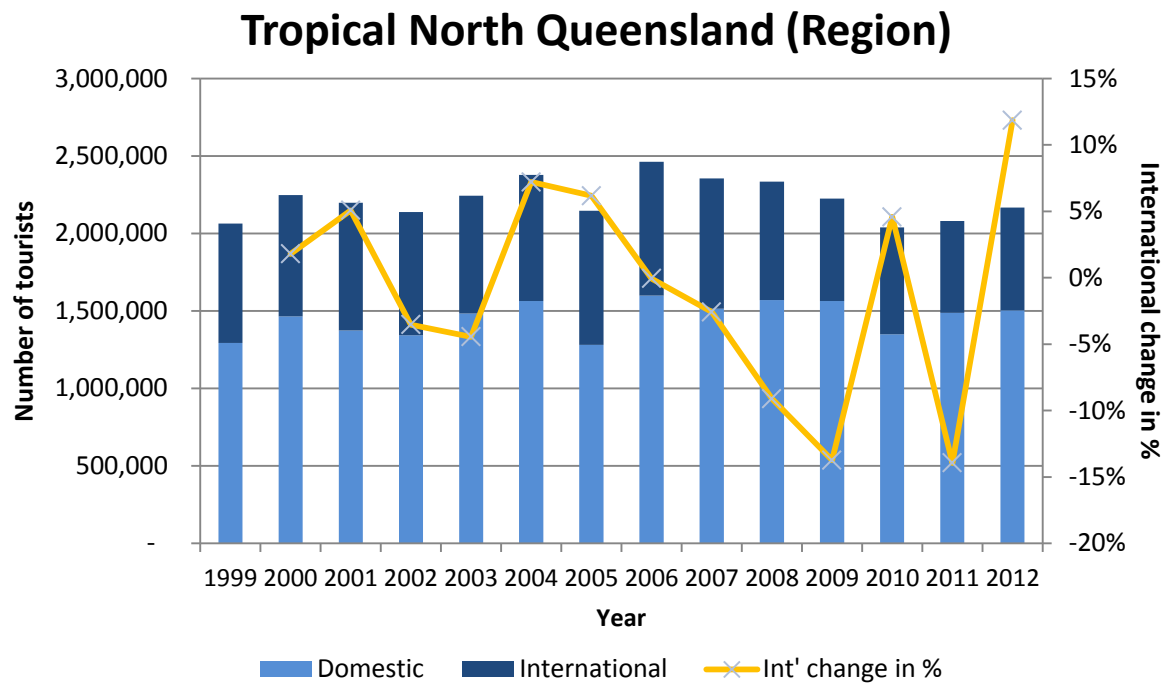


Figure 2. Annual arrivals (domestic and international) and percentage change in international arrivals for Tropical North Queensland Region 1999- 2012

Source: Tourism Research Australia (2013)

Further analysis of the pattern of tourism activity in TNQ over the study period indicates that between 1999 and 2012 TNQs share of the Queensland domestic market fell from 8.7% in 1999 to 8.3% in 2012. Nationally, TNQs share of the domestic market grew from 1.7% in 1999 to 2.0% in 2012. During the study period TNQs share of Queensland's international market declined from 39.6% to 34.4%. TNQs share of the Australian international market fell from 19.15% in 1999 to 12.5% in 2012. Initial figures for 2013 indicate a significant increase in both domestic and international tourists.

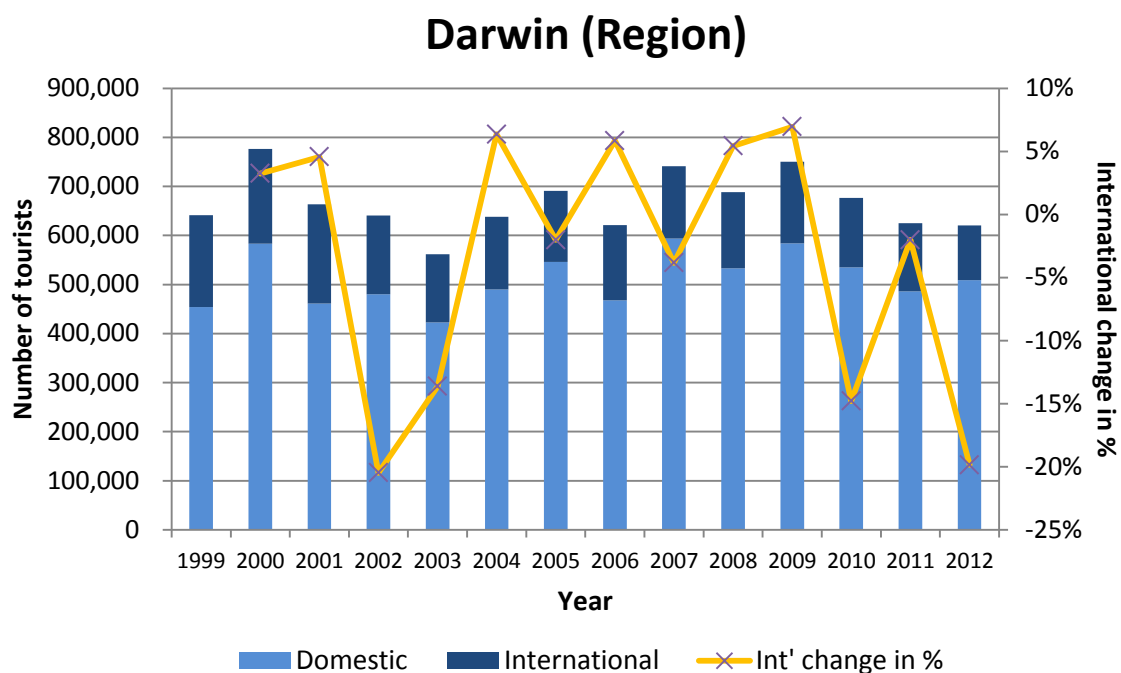


Figure 3. Annual arrivals (domestic and international) and percentage change in international arrivals for Darwin (region) 1999- 2012

Source: Tourism Research Australia (2013)

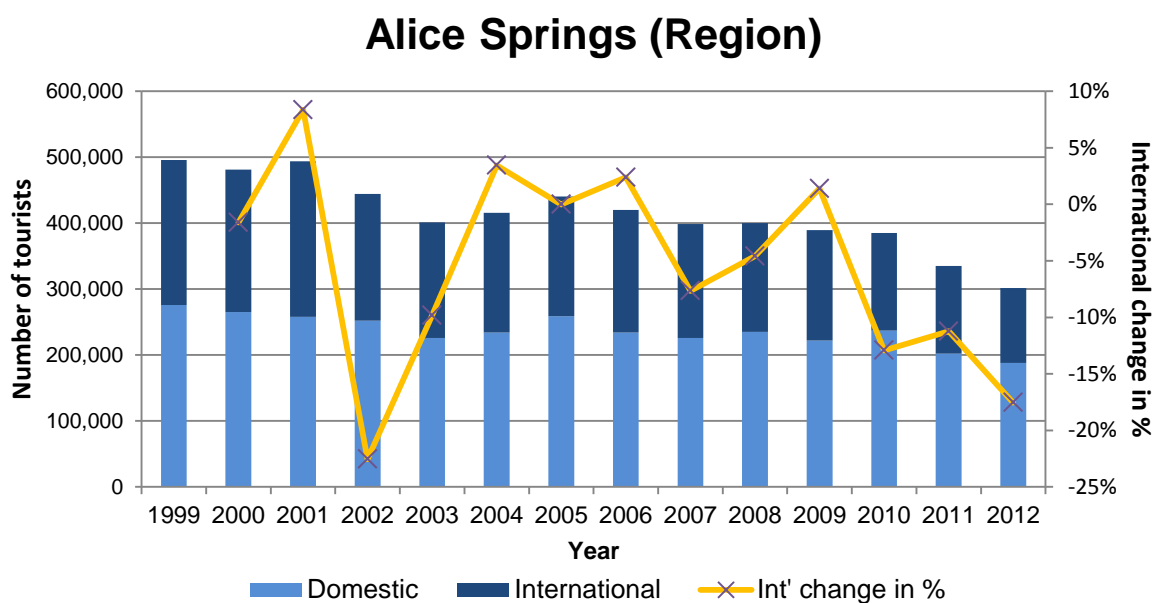


Figure 4. Annual arrivals (domestic and international) and percentage change in international arrivals for the Alice Springs Region 1999- 2012

Source: Tourism Research Australia (2013)

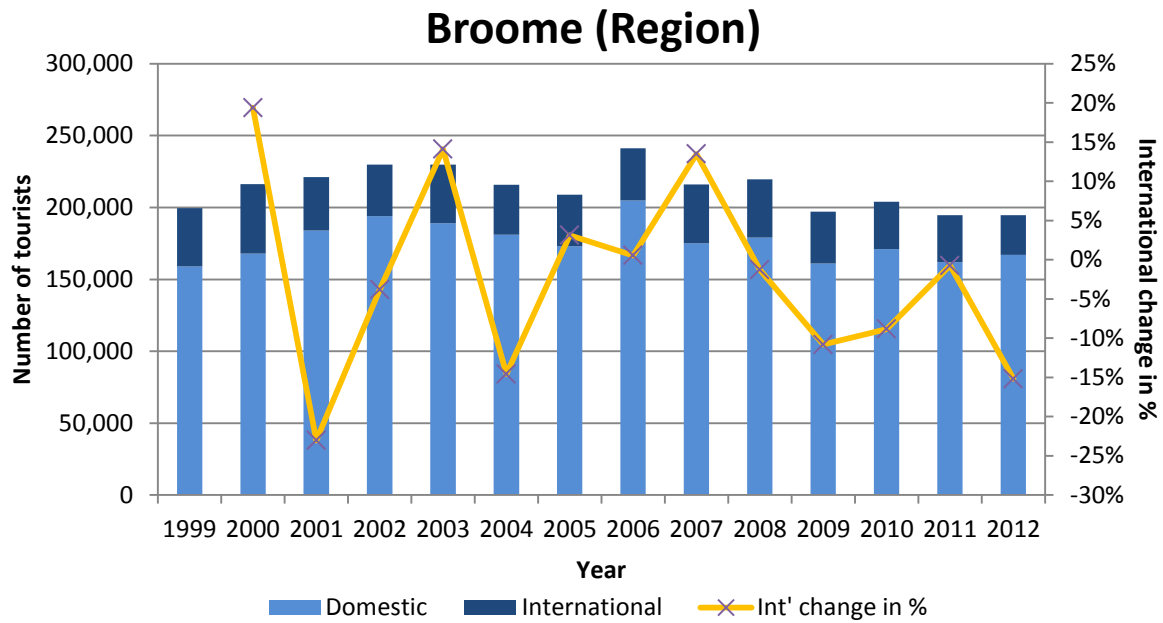


Figure 5. Annual arrivals (domestic and international) and percentage change in international arrivals for Broome (region) North Queensland 1999- 2012

Source: Tourism Research Australia (2013)

Figure 6 illustrates the long term patterns of the Chinese and Japanese inbound markets in Tropical North Queensland. The decline in Japanese visitors after 2005 does not parallel changes in total Japanese outbound tourism over the same period and may be attributed in part to changes made by Qantas to the structure of Japan/Cairns air services operated by the company. The growth of the Chinese market parallels the rapid rate of overall outbound travel from China indicating the region has been able to match the push factors of the Chinese markets with the destination's pull factors.

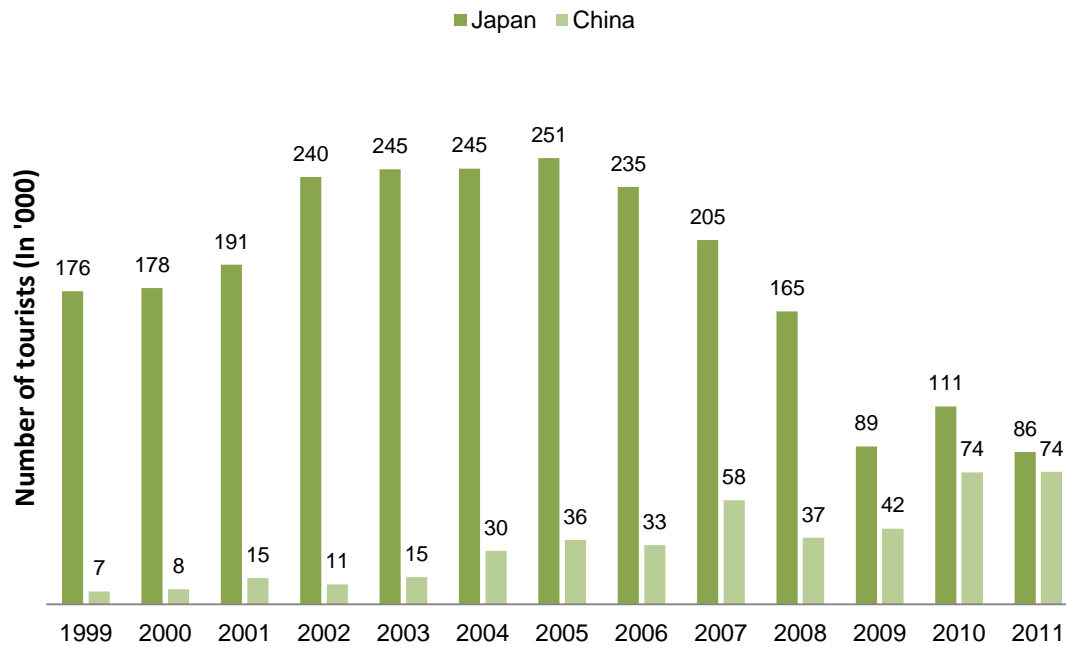


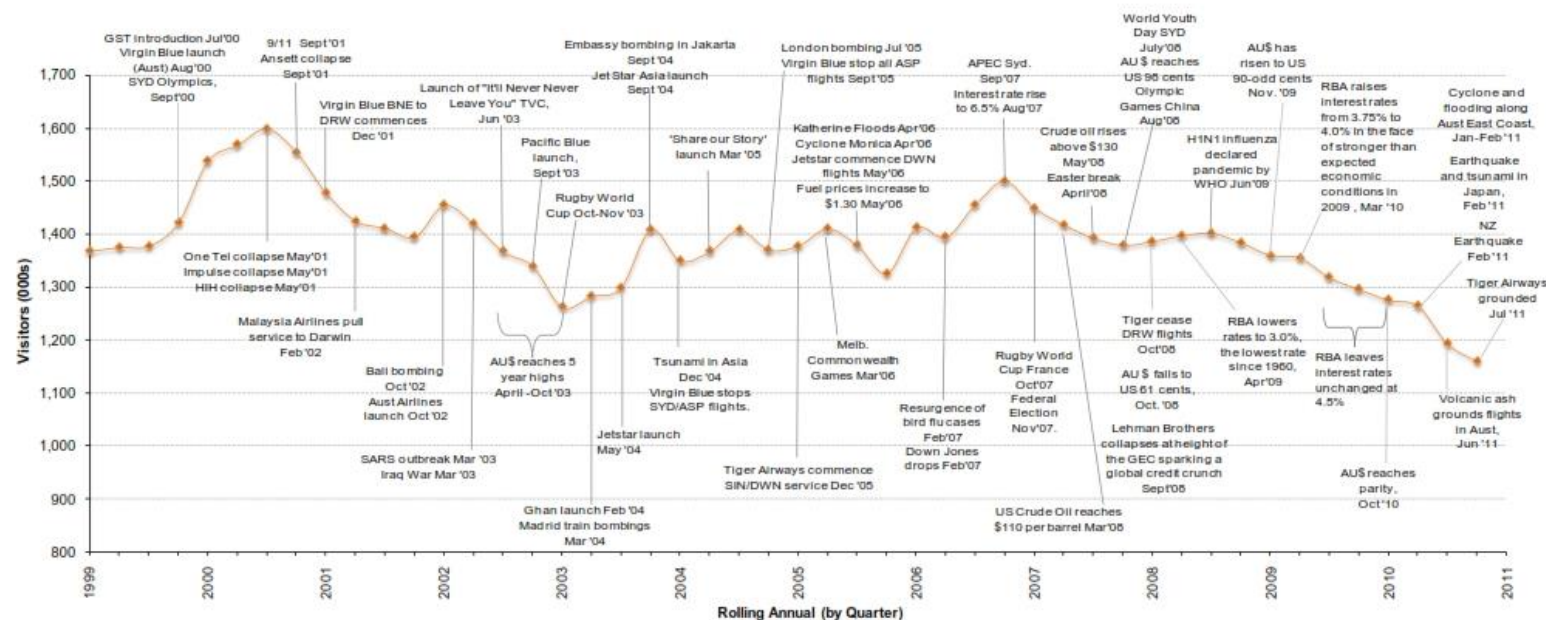
Figure 6. Illustrates the long term patterns of the Chinese and Japanese markets in Tropical North Queensland

Source: Tourism Research Australia (2013)

In the Northern Territory an attempt has been made to tie the decline in visitor numbers to a range of external factors as illustrated in Figure 7 where visitor data is overlayed with major international and domestic trends and events. However, as Figure 8 indicates, there appear to be other factors involved. Figure 8 shows that the percentage of Darwin's leisure visitors has been declining for 12 years while the percentage of visiting friends and relatives (VFR) visitors has been rising. The rise in VFR is not surprising given the growth of the NT's military bases during this period. Moreover, the transient nature of the NT's population also generates significant VFR travel as friends and relatives visit people who have relocated to the NT.

TOURISM TRENDS AND MAJOR EVENTS

Overnight Visits to the Northern Territory



Source: Total overnight visit data derived from Tourism Research Australia's National and International Visitor Surveys.

Figure 7. Tourism trends over the period 1999 and 2011 for the Northern Territory

Source: NT Tourism (n.d.)

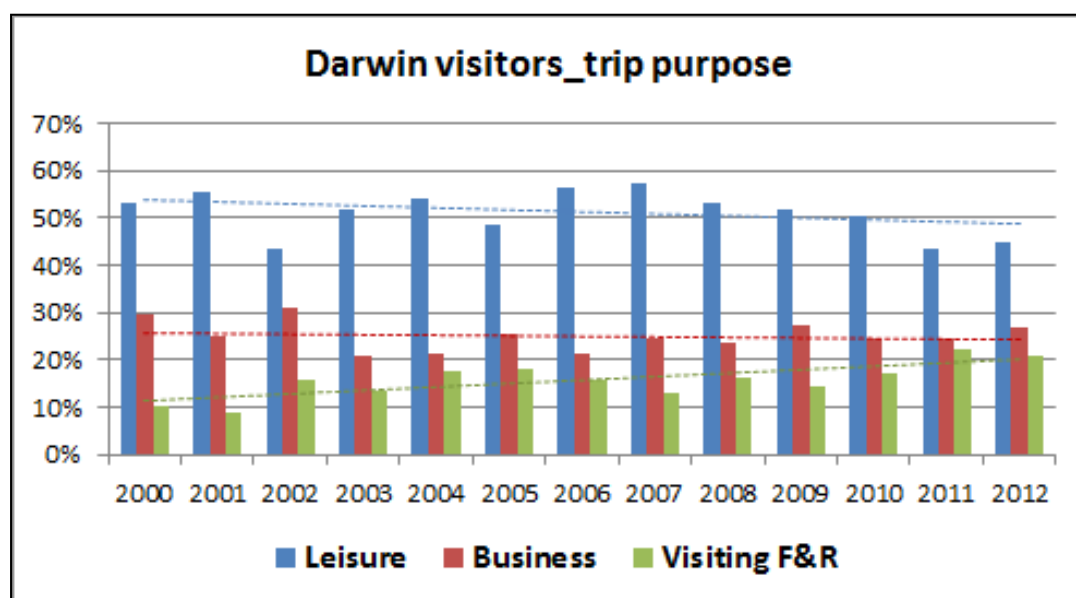


Figure 8. Changes in the composition of Darwin visitors by trip purpose for the period 2000 to 2012

Source: Carson (2013)

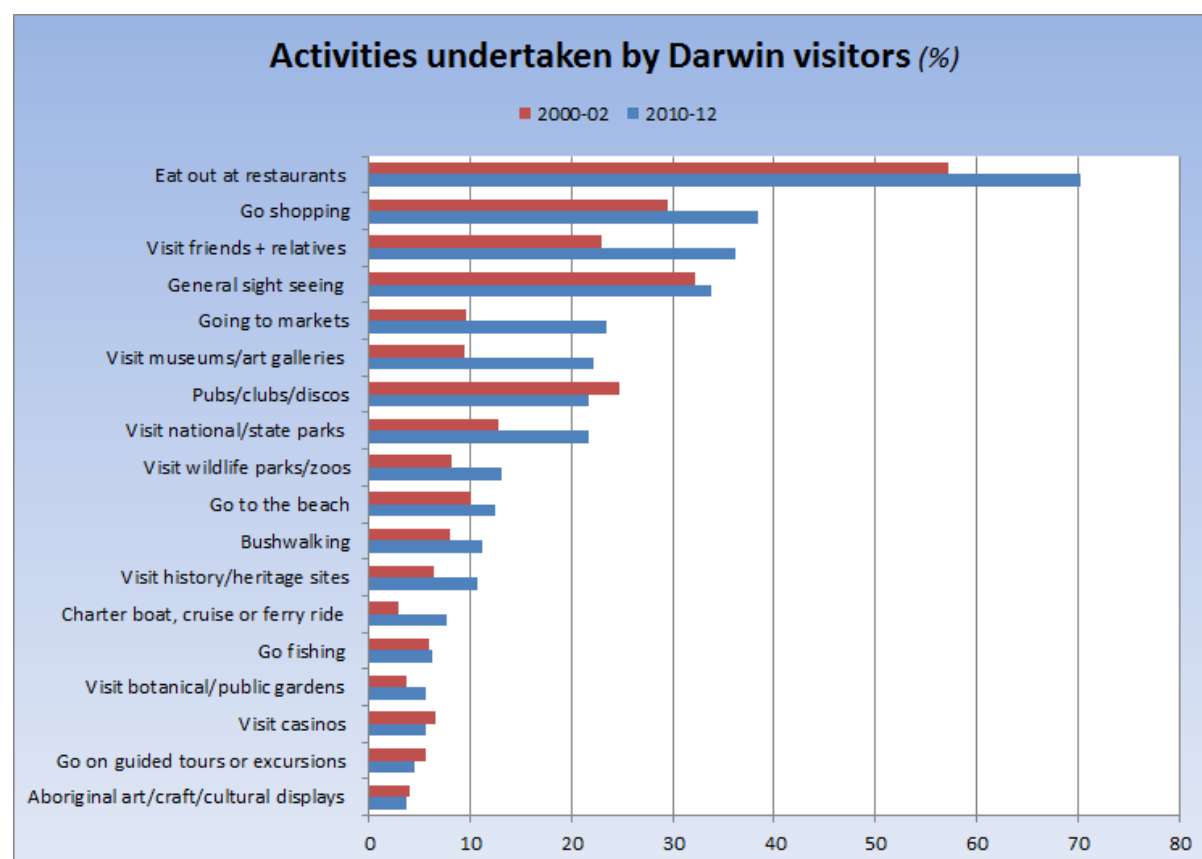


Figure 9. Change in activities undertaken by Darwin visitors over the period 2000-2 to 2010-12

Source: Carson (2013)

Figure 9 illustrates changes that have occurred in the types of activities undertaken by Darwin visitors over the period 2000-2 to 2010-12. Of particular note is the low level of participation in nature based activities. The largest areas of activity growth have been in eating out, shopping, going to markets and visiting museums/art galleries. Visiting national parks has shown strong growth but only just over 20% of visitors participate in this activity type. Based on the data presented in Figure 9 it appears that city tourism, or perhaps the opportunity to participate in the unique Darwin lifestyle, is the key attraction of the city, not its environmental assets.

Questions that arise from visitor patterns in the period 1999 to 2012

Given that the study region's tourism industry has not grown in the last 13 years, nor kept pace with the global rate of tourism growth, it may be worth re-evaluating the role of tourism in the northern Australian economy. Such a re-evaluation might for example ask the following questions:

1. Why has anticipated growth failed to occur?
2. Is further growth achievable?
3. Is growth necessarily the best course for the future?
4. What externalities will have the greatest impact on tourism markets in the future?
5. If growth is the most desirable course for the future, what strategies are required to maximise the study region's comparative and competitive positions?

These questions, but not the potential answers, provide the context for the following discussion.

Externalities and change

While most previous research (discussed in detail in Section 3) has ignored externalities and the concept of change it is these factors that have had many significant impacts on the competitiveness of the tourism industry. For example, the level of the Australian dollar that has been a major concern in recent years was a consequence of the resources boom and residual problems in the post GFC position of many economies. The recent decline in the value of the dollar will open up new opportunities to expand domestic tourism demand and capture a greater share of the international market, however there appears to have been little thought given to this in planning documents. The nature of tourism markets is also changing driven by innovation, economic growth in many developing countries and evolving consumer demands.

There is currently strong science based evidence that a number of factors will have significant impacts on the global economy in the future. These include: rapid urbanisation (UN Department of Economic and Social Affairs, 2011); ageing populations (UNWTO, 2010); loss of biodiversity (Osborne, 2012); the potential for new pandemics (Neumann, Noda, & Kawaoka, 2009); climate change (IPCC, 2013); and peak oil (Becken, 2011).

Comparative and competitive advantage

A key element in determining a destination's ability to develop and retain markets is its level of competitiveness (Dwyer, Forsyth, & Rao, 2000). From a destination perspective, competitiveness can be described in a number of ways based on a range of metrics including visitor numbers, profitability, yield, growth in bed nights, investment etc, or in terms of its competitive and comparative advantages. Although an extensive literature has developed on this topic, a clear definition and model has yet to emerge occasioning Dwyer and Kim, (2003, p. 373) to comment "It is a complex concept because a whole range of factors account for it".

Competitiveness may be defined (Hassan, 2000, p. 239) as "the destination's ability to create and integrate value-added products that sustain its resources while maintaining market position relative to competitors". In a thought provoking comment Ritchie and Crouch (2000, p. 5) commented that "competitiveness is illusory without sustainability". From a destination perspective, competitiveness in its most basic form is the ability of a destination to identify its key selling propositions, identify markets that are likely to purchase these propositions, create a market space where these products are able to be purchased, identify change and future threats, and have the ability to maintain this process over a long period of time in a manner that is both environmentally and economically sustainable (Prideaux, Berbigier & Thompson, 2013). Markets are continually evolving as they respond to changes in consumption patterns, adjust to innovations, comply with new regulatory requirements, respond to changes in global financial conditions and respond to changes in national culture and society. In the future there will also be a need to adjust to changes in the ecosystem and how the visual environment may be protected. To meet these challenges destinations need to implement a process of ongoing evaluation of existing markets, ongoing external scanning for new markets and continual re-evaluation of every aspect of their product range if they are to remain competitive.

Destination competitiveness is based on competitive advantage which is described as value adding activities by firms and institutions in the destination and comparative advantage which includes the range of resources available in the destination including wildlife, heritage, scenery, protected areas, infrastructure, government policy, workforce skills, organisations that promote the destination and its events and festivals, and so on. From a destination perspective, comparative advantage refers to the resources that it has to offer, while competitive advantage describes how resources are used in the production of experiences and products that collectively create a destination experience (Prideaux, Berbigier & Thompson, 2013). The destination's level of competitiveness will determine the type and number of visitors it can expect to receive. Destinations may be able to overcome problems that arise from a lack of comparative advantage by 'buying in' resources and value-adding to them to create a competitive advantage. In the study region a number of businesses, particularly in Far North Queensland (FNQ), have been able to develop a competitive advantage in the wellness tourism sector by overcoming the destination's lack of a comparative advantage (in mineralised waters and hot springs) by building day spas and offering a large range of skill based wellness services and products.

Analysis of Figures 2 to 5 indicates that the study region's major destinations have not grown over the last decade nor kept pace with international growth trends indicating that their competitive position within the global tourism industry is declining. This may not be a major concern if the destinations believe that they have reached the level they wish to grow to and are happy to focus on improving yield, not numbers. If this is not the case, there is an obvious need to examine the region's comparative and competitive position and identity strategies to enhance these positions.

Destinations that do not undertake the process outlined above face the possibility that they will begin to decline as their existing markets seek more competitive alternatives. Conversely, destinations that look for new markets and products have the potential to thrive.

The need for a new approach to dealing with crisis and disaster events

In the past the terms crisis and disaster have been used to describe the type of shocks that could affect the tourism industry in the future. These terms are not adequate to describe long term impacts that are discussed in this paper and as an alternative the term disruption is used.

Disruptions are defined (Prideaux, 2013) as events that cause a shock to the tourism system either through impacts on the demand or supply side (or both). They may be generated by: natural events, human interventions or a combination of both; be of short or long duration; generate significant long term impacts; and, may cause significant changes in the structure and operation of the tourism system in the affected areas. These issues will be discussed in more detail later in this paper.

3. Research approach

As outlined above the relationships between the past, present and future (Figure 1) provide the context for examining the long term environmental and economic sustainability of the study region. To examine these relationships and develop a sense of the factors that may affect the study region in the future a three step study methodology was adopted.

- Step 1. *Review of previous research.* The review included reports and relevant academic literature.
- Step 2. *Environmental scan.* The aim of the environmental scan was to identify a comprehensive range of factors that could impact on the tourism industry in the future. Two case studies are presented to illustrate how the tourism industry may be affected by predicted future events.
- Step 3. *Tourism industry stakeholder views.* Semi structured interviews were conducted with 25 key public and private sector stakeholders in the northern Australia tourism industry.

Step one: Review of previous research

Public sector

There are a large number of reports and a relatively small body of academic research that has in the past sought to inform policy makers and the industry on how the future of the tourism industry in the study region may unfold. There has been a specific focus on forecasting and some work on scenario construction. It is useful to consult this body of work to develop an understanding of the methodologies that have been used in the past to examine the potential for growth and to assess their accuracy.

Over the last 20 years a number of strategies have been produced to provide a roadmap for future tourism development in the study region and more broadly in Australia. Major reports relevant to northern Australia include:

- 1993 Cairns Regional Tourism Strategy (Queensland Office of the Co-ordinator General, 1993)
- Queensland Tourism Strategy - A 10-year vision for sustainable tourism (Queensland Government & Queensland Tourism Industry, 2006)
- 2008 TNQ Repositioning Study (Kleinhardt, 2009)
- Five Year Tourism Strategic Plan: A Plan to Guide the Direction and Success of the Northern Territory Tourism Industry (2008-2012) (Northern Territory Government, n.d.)
- 2009 National Long-Term Tourism Strategy (Australian Government, 2011)
- The Jackson Report (Commonwealth of Australia, 2009)
- The 2020 Tourism Industry Potential (Tourism Australia, 2010)
- 2010 - Experience Perth Tourism Development Priorities 2010-2015, Tourism Western Australia (Tourism Western Australia, 2010)
- Tropical North Queensland Tourism Opportunity Plan 2010- 2020 (TTNQ and Queensland Government, n.d.)
- Tropical Tourism North Queensland Strategic Marketing Plan 2011-2015 (TTNQ, n.d.)

In almost all cases the underlying assumption of these reports is that growth is achievable. Three types of reports can be identified: reports that outlined medium to long term strategy plans; reports that dealt with specific issues such as aviation, destination rebranding and identification of new markets; and reports that focused on environmental issues including ecotourism opportunities.

In general the thrust of these documents has been to identify tourism specific issues that need to be addressed to increase tourism volumes in the future, to identify new markets and how these can be developed, identify infrastructure deficiencies and a range of associated issues including transport, taxation and the regulatory environment. In most cases, reports looked at periods of between 5 and

10 years out. Non-tourism specific issues that could affect the long term viability of the tourism industry were largely ignored.

The Kleinhardt report, *TNQ Repositioning Study* (2009), is an example of a study that undertook a five years out view of the future and how it should be responded to. Earlier, the Queensland Government (2006b) issued a ten year strategy (*Queensland Tourism Strategy A 10-year Vision for Sustainable Tourism*) while the Northern Territory adopted a five year plan for the period 2008-2012 (*Five Year Tourism Strategic Plan: A Plan to Guide the Direction and Success of the Northern Territory Tourism Industry 2008-2012*) (Tourism NT, n.d.). Nationally, the *National Long Term Tourism Strategy* released in 2009 and followed by the *2020 Tourism Industry Potential* report in 2010 (Tourism Australia, 2010) adopted a 10 year strategy.

Most visitor number targets were not achieved. One example is the 1993 Cairns Regional Tourism Strategy which included a forecast that bed nights would grow from 9.5 million in 1991 to 19.6 million in 2001. Growth was much slower than forecast and by 2011 had only reached 13.2 million. Climate change is one of the few exceptions.

In contrast to the targets set by these and other reports, the Jackson Report (Commonwealth of Australia, 2009, p. 3) took a more measured view of the future based on an analysis of the actual trends over the preceding decade and noted that “If Australia does not make the necessary changes, between now and 2030 we risk foregoing 3.6 million international visitors, \$22 billion of tourism’s contribution to GDP, and as many as 100,000 tourism jobs.” The report noted that issues requiring urgent attention included additional funding for research and a renewed effort to rebuild Australia’s competitiveness including an emphasis on maintaining long term product development strategies. By 2013 it was apparent that some progress has been made but many of the strategies outlined by the Jackson Committee have yet to be implemented.

Academic research

There is a small body of academic research related to tourism in the study region and a much larger body of work that deals with issues that affect the tourism industry in general. In the past region specific research was mainly sponsored by the Marine and Tropical Science Research Facility (MTSRF) in Cairns, the Tropical Savannah Cooperative Research Centre, Desert Knowledge Cooperative Research Centre, Rainforest CRC and Reef Cooperative Research Centre. The Cooperative Research Centre (CRC) proposed in the Coalition’s policy paper (The Liberal Party, 2013) on Northern Australia will provide a mechanism to build on the outputs of previous research centres.

The general tourism literature has a growing number of papers on forecasting and more recently a growing number of papers looking at issues relating to sustainability (see Weaver & Lawton, 2007). There is also a growing body of work on the possible impacts of climate change (see for example Gössling, Scott, Hall, Ceron, & Dubois, 2012; Huebner, 2012) and a small number of papers on peak oil (see for example Becken, 2008; Becken & Lennox, 2012). There is also a growing body of work on

factors that affect aspects of destination growth including the impact of crisis and disaster on tourism destinations and implications arising from competitiveness. Apart from Yeoman (2008) who has experimented with long term scenario analysis relatively few attempts have been made to look at the longer term in the sense attempted in this paper.

The scientific literature appears to have a much greater appreciation of the range of factors that are likely to affect the future although it generally does not cast this in a tourism specific context. Research into pandemics, ecosystem changes, population ageing, global food security, urbanisation, climate change, peak oil and public health provides important clues to the future and need to be considered by the tourism industry. The scientific literature also provides useful examples of the consequences of failures to protect the environment. One of many possible examples is the drying of Lake Chad in sub Saharan Africa because of a failure to appreciate the problems caused by large scale irrigation. Between 1963 and 1998 Lake Chad shrank by 95% although significant recovery has occurred in recent years (Coe & Foley, 2001). The loss of enormous areas of tropical forests is another area of concern particularly in relation to biodiversity, loss of ecosystem services and ultimately on long term sustainability of natural areas that in the study region comprise a significant part of its appeal to tourists. Williams et al (2003) work on the impact of climate change on the Wet tropics and Hoegh-Gulberg et al's (2007) examination of the impact of climate change on the Great Barrier Reef are examples of how the scientific literature can inform the tourism industry on what it might expect from future disruptions such as climate change.

It is apparent that the tourism industry needs to be conversant with those aspects of the science literature that provide clues to how environmental sustainability may be affected in the future. Once the impact of these factors on environmental sustainability can be ascertained it will be possible to make an assessment on competitiveness and economic sustainability.

Observations

- There is an obvious need to develop an ongoing relationship between science and tourism of the nature that previously existed with CRCs and the MTSRF. The Coalition's policy paper (The Liberal Party, 2013) on Northern Australia outlines a plan to establish a new CRC in the study region that includes a tourism focus. This proposed organisation has the potential to play a key role in assisting the study region to develop strategies to ensure ongoing environmental and economic sustainability.
- Given the link between environmental and economic sustainability the need for ongoing research into major ecosystems and the tourism industry is apparent.
- If the tourism industry fails to take a more informed view of the factors likely to shape the future it will miss valuable opportunities and may be slow to respond to threats that are now being identified in a number of literatures.
- By failing to incorporate a greater range of factors in its development of tourism strategies the public sector may generate plans that have little relevance in the future.

- Academic researchers have yet to take up the challenge of focusing greater attention on issues that will affect the tourism industry in the future. Meeting a challenge of this nature will require the establishment of a northern Australia tourism research group with appropriate funding.
- Development of a biannual tourism scorecard for the study region would be a valuable planning and evaluative tool for future policy deliberations on tourism in the region.

Step two: Environmental scanning

An extensive review of academic literature, reports and media commentaries identified a large number of factors that may affect the future. Given that the purpose of this paper is to investigate long term environmental and economic factors, the following discussion presents an overview of factors that have been flagged as having some potential to impact on tourism in the future. Some factors such as the growth of the Chinese market and concerns about climate change have been extensively reported upon and there is considerable evidence that the industry is aware of these issues. Other factors such as peak oil are seen as having a threat potential but do not appear to be influencing decision making in either the private or public sectors. Another group of factors appear to be so far in the future that they are generally seen as being beyond the time line of most public and private policy and investment cycles. A final group of factors appear to pose little threat in the immediate future but this situation may change rapidly and with little warning.

When considering the potential impact of the factors identified in the following discussion it is important to have an open mind. It is easy to dismiss warnings of events that have no recent precedents. For example, while there were a number of terrorist incidents in the 1990s there was no indication of the rapid escalation that would occur from 2001 commencing with the 9/11 attack on the USA. That single act set in train a series of responses that led to two wars with Iraq and its subsequent occupation, the NATO led invasion and subsequent 10 years plus war in Afghanistan, the so called War on Terror and from the travellers perspective, the enormous cost and inconvenience of enhanced security at all international and most domestic airports.

It is also easy to overlook or dismiss the lessons of the past. The Black Death that ravished Europe between 1347 and 1353 killed up to 60% of Europe's population and ushered the collapse of the medieval economic and political system (Hays, 2005). The Spanish Flu (1918 Influenza Pandemic) of 1918/19 killed at least 50 million people and as many as 100 million (Taubenberger & Morens, 2006), far more than the number of combatants who died in World War One (1914-1918). Recent pandemics such as SARS, the ongoing potential for Bird Flu (H5N1) first reported in 2003 and the Swine Flu pandemic of 2009 are reminders that pandemics remain a threat and even more worryingly, highlight the form of disruption that may occur if antibiotic resistant superbugs (Editorial, 2013) emerge as a global threat at some time in the future.

It is common for business and governments to undertake environmental scanning to enable them to make informed decisions about policies and investment in new plant and products. Environmental scanning is based on the view that markets are constantly undergoing change and that change can be predicted if the organisation consistently reappraises its external environment (Fletcher & Brown, 2002). Businesses that fail to engage in some form of environmental scanning are likely to miss opportunities for new business or come under pressure because they failed to recognise a threat. Nokia is an example of a firm that as recently as 2007 was the world's fifth most recognised brand but the failure of the company to keep pace with touch phone technology and refresh its product range saw it rapidly lose market share until its mobile phone division was sold to Microsoft in 2013 for 5.44 billion Euros; considerably less than its estimated worth in 2007. Similarly, governments that fail to conduct effective environmental scanning are likely to make poor policy decisions and investments.

In innovation research the term disruptive innovation (Markides, 2005) is used to describe how new technologies can totally reshape markets. The iPad introduced by Apple in 2010 is one of many recent examples. From a tourism perspective, events of the nature described below can similarly disrupt tourism demand and supply.

The following factors were identified in a scan of a wide range of sources with the aim of identifying factors that affect the long term environmental and economic health of the study region's tourism industry. While many seem to have little direct relationship to the region, the growing interconnectiveness of the tourism industry with the global economic and political systems ensures that shocks that occur to one part of the global system may create ripple effects in all parts of the system. One example is the Al-Qaida attack on the US in September 2001 which continues to have significant impacts on the tourism industry more than a decade later.

The following list of factors is not exhaustive or discussed in detail. The list is also speculative but as the preceding discussion highlighted, embedded in reality. While the aim of identifying the following factors is to highlight the type of factors that may occur in the future it is not possible to speculate on how they may affect the study regions' future competitiveness. Following the results of the environmental scan two case studies based on an extensive literature review are presented to highlight the type of impacts that may occur to the tourism industry in the future.

Markets. Tourism markets undergo continual change. In recent decades outbound tourism from China, India, Korea, Russia and Eastern Europe and parts of South America has grown rapidly. This growth is predicted (UNWTO, 2011) to continue as nations in Latin American, Africa and the Middle East emerge as new generating markets. Demographics will also create significant changes in the patterns of demand as baby boomers retire and either cease travelling or demand new types of experiences. It is likely that Generations X and Y will also demand new experiences requiring destinations to develop a new range of attractions or lose their current competitive advantage. There is also likely to be a shift to more city focused tourism as the global population continues to urbanise. This may mean a reduction in demand for nature based tourism experiences as the next generation of tourists seek nature themed

experiences in different forms and settings. For example, what will be the most popular form of reef experience in the future: a day trip to the Great Barrier Reef, or an aquarium experience? Need these be competitors or can they be complimentary? Will there be a shift to new forms of 'nature in the city' experiences and if so what impacts can be expected?

In the long term consumer concerns over climate change has the potential to generate a shift from long haul to short-haul, carbon friendly travel. A development of this nature would have a significant impact on the study regions' international markets.

Impact of new technologies and innovations. Just as new technologies have reshaped the patterns of tourism demand in the past, new technologies will impact on future tourism demand. For example, new transport technologies such as hydrogen fuel cells will create opportunities for pollution free drive tourism. Faster maglev railways able to travel at speeds in excess of 400 kilometres per hour are now technically possible and if built on a large scale will be able to compete with aircraft on many land routes.

Global boom and bust cycles. A cursory examination of the global economy over the last three centuries reveals a series of boom and bust cycles. During the boom component of any economic cycle tourism demand and investment increases only for both to decline in the bust component of the cycle. The China driven mining boom is an example of a boom cycle that has had a disruptive impact on the study region's tourism industry. During the bust component of the cycle tourism demand generally declines. The GFC was the latest of a long series of economic crises that have ranged from global in scale (the 1929 Great Depression) to regional (the Asian Financial Crisis of 1997) and national (the 1990 recession in Australia). As in the past, the future will have new boom and bust cycles. The October 2013 impasse over the 2014 USA's Federal budget is just one example of the type of financial crises that will continue to occur in the future.

Growth of cities. Global wide growth in cities has the potential to create a new range of urban centric experiences where nature will be commodified and sold as an experience along with a range of other experiences such as dining, shopping and entertainment. By 2008 half of the world's population lived in cities. By 2050 the UN (UN Department of Economic and Social Affairs, 2011) has forecast that 64% of people in developing nations and 86% of people in developed nations will live in urban areas (The Economist, 2012). In China, the rate of urbanisation is forecast to grow from 50% in 2010 to about 80% by 2050 (UN Department of Economic and Social Affairs, 2011). India will experience similar patterns of urbanisation. This may create a demand for nature based experiences but the form can be expected to be quite different from that which attracted urban dwellers to natural areas in the past. From a tourism perspective there are new opportunities for the study region to develop a unique urban experience based on tropical lifestyles.

Eco cities. In the future cities will most likely be forced to become more sustainable, possibly along the lines projected by the ecotourism cities organisation (www.ecocitybuilders.org). Early adoption of the technologies likely to be used in future cities to increase their level of sustainability and reduce their call on the environment will help prepare the tourism industry to meet these challenges.

Mining boom. As the two decades long mining boom winds down there is a strong possibility that the AU\$ will continue to fall in value in relation to the US\$ increasing Australia's competitiveness in the international market and increasingly in the domestic market as the price of overseas travel increases. Moreover, the end of the construction phase will free up labour and capital for new investment in the tourism sector and elsewhere.

Natural events. There is a long list of natural events that can generate negative impacts on the study region's tourism industry. These events may occur within the region or outside of it and may include tsunamis, drought, floods, volcanic eruptions and earthquakes. The region has considerable experience with the negative impacts caused in the past by cyclones, floods, fires and droughts.

Climate change. Climate change is anticipated to be a major concern and is discussed in more detail later in this paper.

Decline in biodiversity. The rapid conversion of natural areas to agricultural, urban space and other uses has had a significant impact on biodiversity as species have been forced to relocate or become extinct. Moreover, the industrialisation of farming has led to the loss of many varieties increasing the susceptibility of crops to disease. The ability of the study region to maintain current levels of biodiversity will be difficult if ecosystems come under increased pressure.

Pandemics and antibiotic resistant superbugs. Recent pandemics such as swine flu and the potential for new varieties of bird flu pose a significant threat to tourism. During the SARS epidemic travel into and out of a number of Asian countries virtually ceased. This will happen during future pandemics, severely disrupting the tourism industry. From a regional perspective, the presence of dengue fever is a concern and the potential for malaria and other mosquito borne diseases to be established in the study region is a factor that will need to be considered.

Peak land. There has been concern expressed that the world is close to exhausting the supply of land needed to feed a growing global population. This need not be a problem if crop yields in developing countries are increased to the level achieved in developed economies, more efficient storage and transport systems eliminate spoilage between the farm gate and the consumers plate and consumers significantly reduce wastage. For the region, the call to convert virgin land into farm systems may have an impact on biodiversity.

The experience economy. Some areas of the global economy are now moving into the experience economy where consumer surplus is able to be directed to new demands such as travel, leisure, entertainment, indulgence and conspicuous consumption. This trend will be reflected in demands for new forms of tourism experiences.

Political unrest. In the last 10 years there has been significant political unrest in the Middle East culminating in the Arab Spring of 2011, the 2013 coup in Egypt, the civil war in Syria and ongoing sectarian violence in Iraq. All events of this nature have an impact on travel. It is likely that events of this nature will continue to occur particularly in the Middle East but may occur elsewhere in unexpected localities.

Wars and conflict. War has always been a major disruptor to travel and as history shows is generally difficult to predict. In the last two decades there have been numerous unpredicted wars including the 2008 war between the Russian Federation and Georgia. Given human kinds past history of warfare it is unlikely that the future will be free of war and conflict.

The preceding discussion has identified a range of factors that may change the conditions that currently govern the operation of the tourism industry in the study region. In most cases the timing and extent of impact are unable to be predicted. To demonstrate how two probable future disruptions may impact on the study region the following discussion presents case studies on climate change and peak oil and outlines the form of change that these future disruptions may create.

Case Study 1 Climate Change

What we know about the possible effects of climate change

The latest IPCC (2013) report stated that there is now a 95% probability that current global warming is a result of human action. It also states that without intervention to reduce the level of Green House Gas (GHG) emissions global temperatures will continue to increase and sea levels will rise. The scientific understanding of the potential impacts of climate change has been extensively documented and includes increasing global temperatures, changes to global weather patterns, an increase in sea levels, increasing acidification of oceans (IPCC, 2007), more severe fires and large scale extinctions. These changes will flow through ecosystems causing significant changes to flora and fauna creating new ecosystems likely to be significantly different in scale and composition from those of today. These impacts will have significant implications for the long term sustainability of the tourism industry, particularly those elements that are nature based.

At a human scale increased ambient temperatures are likely to have an adverse impact on human psychology making life in the tropics more difficult. This in turn may make some tropical destinations unsuitable for tourism activity in the peak summer months (Banwell, Dixon, Bambrick, Edwards, & Kjellstrom, 2012).

An understanding of how climate change may impact at the destination level has emerged in recent years. Research by Williams et al (2003) in the Wet Tropics bioregion of TNQ found that even a 1⁰C rise in temperature will initiate a reduction in the range of every species of regionally endemic vertebrates. If temperature rises by 3.5⁰C, 30 of the 65 species modelled will lose their core environment and there will be no areas left where species richness exceeds 30 species. At 7⁰C all 65 species studied will be lost. While this research was undertaken in the Wet Tropics rainforests similar impacts can be expected in all ecosystems in the study region.

Recent research into the impact on the marine environment also paints a grim picture for the region's coral reef system, often described as the jewel in the crown of the region's tourism industry. Research by Hoegh-Gulberg, et al., (2007) found that a 2⁰C increase in temperature above summer maxima for 3 to 4 weeks will result in extensive coral bleaching events. If higher temperatures are experienced there is a strong likelihood that most reef systems will collapse or be severely degraded.

A meta study of 1735 marine biological responses to climate change by Poloczanska et al (2013) found that leading edge or 'front line' of a marine species' distribution is now migrating towards the poles at a rate of between 30 and 72 kilometres per decade. This migration is much faster than terrestrial species which are migrating poleward at a rate of between 6-16 kilometres per decade.

Research by Suppiah, Bathols, Macadam and Whetton (2009) indicates that the severity of extreme weather events will grow with rainfall variability increasing.

What we don't know about the effects of climate change

What is apparent is that northern Australia will face significant climate change pressures in the future. What is unclear is the timing of climate change induced events and their magnitude. State of the art climate models show a clear causal relationship between increasing atmospheric levels of greenhouse gases (IPCC, 2007) and changes to global temperatures, weather and sea levels. Current models are not yet able to agree on the extent of temperature increase at any given level of greenhouse gases emissions or the final level of sea rise at any given future temperature level. As the precision of climate models increases, their ability to predict future changes is expected to improve and provide a more reliable guide for policy makers.

There are several other important relationships that are not yet clear (Prideaux, 2013). These include the 'tipping points' that trigger rapid increases in global temperatures and sea level rises, the ultimate level that greenhouse gases will rise to and the point in the future when the ultimate level of greenhouse gasses will be reached. The first of these unknowns, tipping points, is a factor that involves a series of scientific relationships that are still not entirely clear to the scientific community. We do know, however, that there does appear to be points that when reached, cause rapid large scale changes in global temperatures and sea levels. The scale and rapidity of change that can occur is demonstrated by the Younger Dryas event during the period 12,800 to 11,500 BP. A sudden interruption of global warming towards the end of the last ice age resulted in global temperatures falling by up to 8⁰C in a very short period of time. After a period of approximately 1300 years

(1,300±70 years) this cold period ended suddenly and temperatures rose by 8°C over a 40-50 year period in three discrete steps each lasting about 5 years (Alley, 2000).

The second and third unknowns, the ultimate level that greenhouse gases will rise to and the time that the ultimate level of greenhouse gasses will be reached, are factors that may be influenced by policy makers although this has yet to occur on a global scale. If political leaders are able to agree to and rapidly implement policies that reduce the level of greenhouse emissions, or even wind back current levels, the most extreme impacts of climate change are unlikely to occur. Moreover, the timing of changes that will be generated by increased global temperatures is largely in the hands of global policy makers.

Impact at destination level

At the destination level the tourism industry will be faced with having to cope with the future impacts of policy settings that are introduced by the public sector to both mitigate and adapt to climate change. The carbon tax introduced by the Gillard Government in 2012 is an example of the type of mitigation strategies that may be introduced by governments in the future. The EU introduced a carbon trading scheme (European Union Emission Trading System) in 2005. China recently announced a number of pilot programs to experiment with carbon pricing. If consumers begin to accept some level of personal responsibility for the factors that generate climate change there may be a corresponding change in their pattern of demand for travel—a reduction in demand for long distance air travel for example. This is unlikely to occur in the near future and will to a large extent depend on the public sector accepting the need for reducing greenhouse emissions and implementing legislation to force firms and consumers to adopt schemes to reduce emissions.

The impact of climate change on landscapes may also affect demand. Recent research (Prideaux, Sakata & Thompson, 2013) found that of a sample of 368 respondents surveyed at Cairns airport in 2012, only 29.4% indicated that they would still have visited Cairns if the Great Barrier Reef (GBR) was affected by a major coral bleaching event described in the questionnaire as “when the coral dies because of high water temperatures.” Almost half the sample (51.3%) were ambivalent while 19.3% answered “no”. Other climate change factors that will affect demand include rising sea levels and an increased severity of cyclones. A recent article in the Scientific American (Fischetti, 2013) illustrates the potential impact of rising sea levels on the US east coast and the cost of defending cities such as New York and estimates that New York alone has more than US\$2 trillion in coastal property in danger of flooding from sea level rise and more frequent events such as Hurricane Sandy.

At the current state of knowledge there are far too many unknowns to allow clear timelines of cause (impacts of climate change) and effect (the response of firms, governments and consumers) on the tourism industry to be developed. However, it can be expected that there may be impacts on business profitability and the possibility of firms disinvesting in some aspects of tourism services in significantly affected destinations.

The inability to develop clear timelines is a major consideration for destinations and in many cases may lead to under or over reaction in terms of the level and timing of responses (Prideaux, 2013). Under-reaction describes a situation where, in the absence of timelines, no action is taken and at best a wait-and-see attitude is adopted. An example of this is the USA state of North Carolina that has outlawed “scenarios of accelerated sea-level rise unless such rates are consistent with historic trends” (The Economist, 2012, p. 34). In situations of overreaction the opposite occurs and acting on the precautionary principle, described as “caution in advance”, but with an incomplete understanding, restrictive policy settings are introduced that in the case of the tourism industry will potentially generate greater negative impacts than may have occurred if a more science based response policy had been adopted.

For northern Australia climate change poses a number of challenges. If major natural asserts such as the Great Barrier Reef, the Wet Tropics rainforests and Kakadu are perceived to be declining in quality, visitor numbers are likely to fall. A decline of this nature will require destinations to develop a new suite of attractions to retain their tourism industry. In the case of Cairns this might include the development of an expanded food tourism sector and a greater emphasis on city based tourism and events. In Darwin the emergence of city focused rather than nature based tourism could provide a new theme to attract tourists.

In the longer term two factors that need to be considered are how tourists, and employees, will physically cope with increased heat levels, and how destinations will respond to increased sea levels. In the middle of summer high temperatures combined with high humidity, may make conditions so uncomfortable that tourists will be discouraged from visiting the region. Moreover, there will be a rise in the cases of potentially fatal heat stroke and heat exhaustion. Rising sea levels also pose a significant risk. As the previous reference to research undertaken into strategies to cope with rising sea levels on the US eastern seaboard illustrate the cost of defence may be greater than any benefits. New private and public infrastructure should take into account potential sea level rises in new building projects. This could also be reflected in planning requirements and zoning laws. In the major coastal destinations such as Broome, Darwin, Cairns and Port Douglas rising sea levels will pose a major threat.

Case study 2 Impact of rising oil prices

The global supply of non-renewable oil is finite and the point at which global output peaks and then begins to decline is generally referred to as peak oil. While there is considerable debate about the timing of peak oil, there is almost no dispute over its inevitability (Becken, 2008) or the impact it will have on the price of oil. As demand continues to increase, driven primarily by economic growth in China, India and other developing nations (International Energy Agency, 2011), prices will continue to increase.

One result of the growth in demand and increasing scarcity of oil will be a significant rise in airfares (Becken, 2008). Although the latest generation of commercial aircraft such as the Boeing 787

Dreamliner and the Airbus 350 are more fuel efficient than earlier aircraft, the cost of jet fuel as a percentage of airline operating costs (currently averaging about 30%) is expected to continue rising (CAPA, n.d.), reflecting past patterns of increase. In 2001 fuel costs averaged 13.2% of airline operating costs, rising to 33.2% at the peak of the 2007-08 fuel price spikes.

A recent report by BP (2013) forecast that in the period 2013 to 2030 demand for energy including oil will increase by 36%. The report (2013, p. 5) optimistically concludes that 'increased demand can be met as long as competition is present to drive completion, unlock resources and encourage efficiency'. Other sources (e.g., Ragnarsdóttir, Sverdrup, & Koca, 2012) are less optimistic that sufficient new oil reserves will be found. A significant percentage of the increase in the supply of non-renewable energy will come from sources other than oil. Global oil production has remained relatively static since 2004, although increased production of oil extracted from shale in the USA and the opening of new offshore oil fields in Brazil will ramp up global production in coming years.

One of the major problems confronted by oil companies is locating new sources of oil and developing the infrastructure to bring them into production. Most new discoveries are expected to be from unconventional forms, including oil sands, oil shale, presalt deepwater (oil found 3,000m below sea level and located under thick beds of rock salt) and so called tight oil obtained through a process known as "fracking". New reserves of gas (Australia, the eastern Mediterranean Sea and Madagascar) may reduce demand for a short while and improved recovery technologies will act as a mitigating factor on price. There is also some promising research into renewable fuels based on cultivation of a range of plants and algae but a significant contribution to global supply seems some time away. Continuing growth in demand is likely to lead to a continue rise in the price of oil into the foreseeable future, with possible falls occurring only during periods of recession.

In response to oil prices increase, airlines will be forced to add fuel surcharges to the cost of fares reducing the attractiveness of air for leisure travellers. The level of impact on aviation will depend on factors such as the rate at which consumers swap long-haul travel for short-haul travel, the propensity for consumers to take domestic holidays instead of international holidays, the elasticity of demand for travel and the introduction of new transport technologies. The 2007/2008 (Hamilton, 2009) spike in the price of oil illustrates how rapidly fuel prices can rise and how quickly this impacts on tourism demand. The timing of price rises generated by peak oil is not clear and depends on a range of externalities including the growth of the international economy and a number of oil related issues such as the level of biofuel use, the cost of recovering oil in difficult to access reserves, the rate of response by consumers to price rises and the potential for new oil-replacement technologies such as hydrogen fuel cells.

The strength of response by consumers to an increase in the cost of air travel will have significant implications for Australia. Given that mass tourism is price sensitive it may be anticipated that demand will fall as the price of air travel rises, once the inelastic portion of demand has been exceeded. One response may be a decline in arrivals from international markets such as China, the USA and Europe, particularly as the cost of air travel escalates and consumers become more conscious of the carbon

cost of their travel. Domestically, it may be anticipated that a fall in demand for overseas travel will create new opportunities for domestic destinations such as those in the study region.

In the study region it may be expected that an increase in the price of airline tickets will act as a disincentive to long-haul travel, particularly from major inbound markets. Given that Australians travelling overseas will face the same cost pressures, the study region should be able to market itself as an alternative destination. One problem that may be encountered is that climate change may adversely affect the attractiveness of the study region and reduce its comparative advantage based on its existing suite of natural resources.

Observations

- The environmental scan discussed above has highlighted a large number of issues that may have an impact on the economic and environmental sustainability of tourism in the next 20 years and beyond.
- It will be difficult to prepare for events of this type. However, if the tourism industry is to remain competitive over the long run it must develop new types of tourist experiences to replace those that decline in quality or popularity.
- The danger is that if the public and private sectors ignore long term factors of the type identified above they will be ill-prepared to meet the challenges that will occur as these factors begin to affect tourism.
- The two case studies highlight the type of problems that may emerge and how the tourism industry may be affected.
- Change of the nature highlighted in the environmental scan may have both positive and negative impacts. The growing interest in city based tourism, for example, provides the region with an opportunity to develop new products and experiences and adjust to a potential decline in demand for nature based experiences.

Step three: Tourism industry stakeholder views

The following discussion reports on the views of industry, government and academic respondents to a series of questions asked about their views on the long term environmental and economic issues facing the study region. Interviews were conducted in Cairns, Darwin, Alice Springs, Brisbane, Gold Coast, Canberra and Perth. On average interviews lasted for an hour. The respondents included senior marketers, consultants, operators, public servants, academics and industry associations. Collectively, the interviews canvassed a wide variety of opinions.

The major issues explored were views on what the long term meant, views on environmental sustainability, economic sustainability, potential impact of major future events such as climate change, and views on what new markets may open in the future. Unsurprisingly, there were considerable differences of opinion based on geographic location and public, private and academic respondents.

To open the conservation respondents were asked for their views on the major types of experiences offered to tourists in Northern Australia.

Major experiences that attract tourists in northern Australia

It is no surprise that responses to this question were coloured by the position that individual respondents held and the areas that they were most familiar with. Thus respondents living in the Northern Territory (NT) were more likely to respond from a NT perspective while a respondent living in Cairns was more likely to respond with a north Queensland perspective. For example, Kakadu and Uluru were generally placed in the top two attractions in the Northern Territory while in Cairns respondents were more likely to indicate the Great Barrier Reef and the Wet Tropics Rainforests. However, underlying all responses was a general view that major experiences were based on the region's environmental assets (ecosystems), its landscapes (the Gulf Savannah for example) and the experiences that visitors derive from visiting these resources. The significance of individual ecosystems varied between location but generally included the desert, Kakadu wetlands, Great Barrier Reef, savannah and the Wet Tropics Rainforests. In both Broome and FNQ there was an additional emphasis placed on beaches and adventure activities. Drive tourism across the top end was also viewed as an important experience by a number of respondents. Northern Territory respondents also highlighted the role of indigenous tourism. Queensland and Western Australian respondents also mentioned indigenous tourism but did not give it the same level of importance as NT respondents.

Environmental sustainability

While there were concerns over a number of specific issues the general view of the private sector was that the natural environment was in reasonable shape and that the range of programs currently being implemented by government will largely assist it to remain in good shape over the long term. Academic and public sector respondents were less positive and saw a range of possible problems likely to arise in the long term, particularly those associated with climate change.

A number of respondents expressed concern about the impact on biodiversity from a range of causes including mining, farming, lack of government regulations, urbanisation and invasive species. Climate change was not considered as an immediate concern by most private sector respondents.

There was concern expressed particularly in Queensland and in the Northern Territory that funding for park maintenance has been declining in real terms for some time. One consequence has been the degrading of a number of protected areas and an increase in feral animals and invasive weeds.

Specific concerns raised in the Northern Territory included feral animals, resourcing of protected areas, saltwater intrusion into wetlands (with the observation that a change in the ecosystem may also be of interest to some visitors) and wildlife management (particularly crocodiles).

In Cairns, specific concerns included the threat posed to the Great Barrier Reef by coastal land management practices (particularly farming) and the Crown of Thorns starfish (COTS), and in the longer term by new coral bleaching events. Some concern was also raised about feral animals, the long term survival of the cassowary and crocodile management. The issue of resourcing parks, particularly in Cape York was raised and fears expressed that invasive species and uncontrolled fires may damage these areas.

In Western Australia some concerns were expressed about feral animals (cane toads in particular) and problems with fires.

There was also concern about how protected areas were being used as a tourism resource. For example, several respondents observed that the Kakadu product has not changed in 25 years and some experiences such as swimming have closed. Moreover the adventure market has largely disappeared and remaining groups are generally older visitors with few from Generation X or Y.

General concerns about the tourism product of the region

The following points highlight a range of concerns that were raised about the tourism industry and its ability to retain its competitive edge over the long run. Most responses were given within the context of the area respondents lived in or had some responsibility for or knowledge of.

There was some concern that changing weather patterns posed a future threat. As the temperature increases the winter peak is reduced affecting the desirability of the destination (particularly Darwin). There was also concern about the likelihood of more severe cyclones in the future.

In Cairns there was concern that the ability to offer a first world standard in a tropical setting was declining and new Asian destinations are offering better products. Flat arrival figures combined with low yield has resulted in maintenance standards slipping, lack of investment, little refurbishment of existing properties and until the recently announced Aquis project (this project was announced after interviews were completed), no new investment in hotels (apart from apartment hotels) for over a decade. There was also some concern that Port Douglas is rapidly urbanising and as a result has lost some of its village feel.

A number of Cairns respondents commented on the poor impression visitors received when they arrived at the airport. Despite a recent refurbishment arrival and departure walkways had a third world feel about them and external areas were treeless.

Darwin and Broome respondents were particularly concerned about the potential impact of gas projects fearing that the state/territory government was more concerned about these projects than tourism. In both cities respondents commented that room rates had escalated because of the need to house construction personnel squeezing tourists out of the market. (It should be noted that the gas project previously intended for Broome has been shelved relieving pressure on its accommodation sector.)

Respondents in Alice Springs expressed concerns about the future viability of the industry observing that the town was having difficulties in attracting new market segments to replace those that have declined including coach trips and backpackers.

In relation to Darwin respondents believed that people visit Darwin for the same reasons people like to live in Darwin: laid back life style, the environment and the Darwin brand built on this life style. There was some concern that the development of natural gas and the basing of US marines in the city might alter this 'Darwin feel'.

The challenge for Darwin was seen as being able to move beyond the current target audience and engage better with new audiences, i.e., experience seekers. Part of this process may be to promote Darwin as an urban tourism experience that could focus on lifestyle, food, culture and heritage (military history) in addition to its natural environment. As part of this refocusing, a greater emphasis could be placed on the Chinese market as well as Indonesia and Singapore. The Mindall Markets were seen as an example of Darwin's tropical lifestyle that is emerging as a new tourism experience.

Economic sustainability

This issue generated significant discussion. Many respondents were concerned that despite numerous reports, plans and marketing campaigns the region as a whole has not experienced growth for over a decade despite the global tourism industry having expanded significantly over that period. Blame for this was variously apportioned to the high value of the Australian dollar, poor weather including cyclones and floods, withdrawal of air services, a decline in the Japanese market, lack of investment by the public sector, the growing preference by domestic visitors for overseas travel, high costs because of the high cost of labour and lack of new product.

While not generally pessimistic about the future most respondents were concerned that past efforts to revitalise the region had not been successful and that this may continue to be the pattern of the future. A number of the solutions offered involved revitalising existing products, additional government investment in infrastructure and attracting new markets (principally China).

In Darwin the main concerns involved the high cost of land which made it expensive for both investors to build and for people to settle there. High rents was cited as a factor that forces many young people to leave, and discourages migration into the city. Broome was facing a similar problem, although with the announcement that the James Price gas hub has been shelved by Woodside this problem has largely dissipated. Other problems cited included the value of AUD (at the time the interviews were conducted one Australian dollar was worth US\$1.06. By September 2013 the situation had reversed and the AU\$1.00 was worth about US\$0.89). The high cost of aviation, the distance of the Northern Territory from its major source markets, vertical and horizontal integration which affects consumer choice and prices and increasing cost of inputs and compliance were cited as other concerns. Mining and gas developments were cited as major concerns because they compete for labour, are able to pay more than the tourism industry and had made a major call on government expenditures resulting in expenditure cuts to environmental agencies. Other issues that may impact on the destination

included difficulties with staff retention, lack of reinvestment in protected areas, lack of a tourism research capacity at Charles Darwin University and little new investment in tourism related infrastructure. Most respondents indicated that the long term economic viability of the Darwin tourism industry will depend on coexistence with other industries, principally mining and gas. There was also a belief that long term economic sustainability rested on developing new markets, adapting existing products and on the continuing long term sustainability of the Northern Territory's natural environment.

A further element in the long term sustainability of the tourism industry was the willingness of the Northern Territory Government to become more engaged with the industry. As one public sector respondent noted, the government continues to be consumed by social issues and as a result there is no direction for economic development emanating from within the government.

As one respondent noted, the last major facility built in Alice Springs was the convention centre over a decade ago. Other concerns about Alice Springs included airline access, ageing infrastructure, poor hotel standards, a lack of the political will, poor tourism infrastructure and the decline in the Northern Territory budget for tourism related infrastructure.

Respondents in Cairns noted that while there had been some significant investment such as the airport redevelopment, several new apartment hotels, and the cruise terminal, much of the product had been operating for a long time and the only new projects on the horizon were the deepening of the cruise terminal and a new city located aquarium (the Aquis resort project was announced after the conclusion of this stage of the research). The lack of major new projects such as Skyrail was seen as a major problem.

Respondents also noted that there had been considerable public debate in the media about the need for alternative industries to tourism but to date none had been identified or were likely to be identified in the future. Further, the downturn that occurred during the GFC left the city's economy in the doldrums with one of the highest unemployment rates in Australia. The collapse of the city's major property developers and builders, the lack of migration into the city and drop off in tourism related employment were major causes of the high level of unemployment.

Notwithstanding the previous comments, most Cairns associated respondents were optimistic that the region had enormous potential and that the growth of the Chinese market and resurgence in domestic tourism provided some optimism. This optimism is in part reflected in the bold growth targets outlined in the *TTNQ Strategic Marketing Plan 2011-2015* (TTNQ, n.d.). Other positive factors noted by respondents were that domestic airlines were increasing capacity into Cairns, China Southern and China Eastern had commenced flights into the city, Cathay Airlines had increased services to a daily basis and the Cairns Ironman event had been very successful.

A number of respondents noted that: there continued to be major gaps in the city's product line-up including a failure to recognise there was a growing market for local food experiences; there was a shift in tourist preferences away from nature based tourism towards low activity apartment style

holidays; a growth in repeat visitors who did not visit the reef and were looking for more city based experiences; the education market still had a lot of potential for growth; and, the backpacker market needed boosting. Marketing was also flagged as an important issue. As a number of respondents pointed out the Gold Coast was able to outspend Cairns because the Gold Coast Council imposed a tourism marketing levee. If a similar model was introduced in Cairns the destination would be able to be more aggressive in its marketing. It was noted that the Cairns City Council has explored this issue previously but backed away because of perceived resident opposition. Several respondents also pointed out that recent marketing slogans such as 'Change your Latitude ' had been unsuccessful and that Tourism Tropical North Queensland (TTNQ) has almost no research capability.

A significant number of respondents in the TNQ section of the research stressed the overwhelming importance of the environment to the long term economic sustainability of the region. If the quality of the environment is degraded there was agreement that the demand for travel to the region will decline.

Defining the long term

Respondents were asked to define in their own terms the meaning of long term. Many respondents from the private sector, particularly at manager level, gave between 4 and 6 years from present as their view of the long term. Respondents who held senior marketing positions were more likely to give a time frame of 10 or more years. Public sector respondents and academics were more likely to talk about a range of time frames from 10 to 15 years.

Climate change

Climate change was an issue raised by a number of respondents particularly in relation to long term environmental sustainability. Most private sector respondents, particularly at manager level, did not see climate change as a problem in their view of the long term believing that if it was to influence their business or their destination it would be well outside of their current business planning and investment cycles. Public sector and academic respondents were more likely to indicate concern about climate change in the long run and many felt that action was needed to begin to plan for adapting to eventual impacts.

Specific concerns noted about climate change included its potential to impact on the natural environment thus reducing its appeal to the tourism industry. Some concerns were also raised that the government's regulatory response, the carbon tax for example, will increase prices and reduce competitiveness. There was also concern that consumers may forgo travel to the study region on the basis of its carbon cost. No specific advantage was seen in promoting carbon mitigation schemes.

Research needs

Respondents were asked for their views on the region's research needs. Many respondents identified additional marketing research as a priority. A smaller number of respondents also felt that additional investments were required into research that looked at the region's environment and biodiversity. The

need to look for ways to manage invasive species and Crown of Thorns starfish were also discussed. The work undertaken by the various CRCs in the past as well as the Marine and Tropical Science Research Facility (MTSRF) and universities was acknowledged and there was support for ongoing research of this nature. Several respondents highlighted the need for a new CRC type organisation that could undertake environmental and tourism associated research across the study region.

Observations

- There was a widespread view that the region's long term economic sustainability was tied to its long term environmental sustainability.
- While there were some concerns raised over environmental issues including invasive species, the upkeep of protected areas, impact of mining, urbanisation and the health of the Great Barrier Reef, the overall view was that the environment was in reasonable shape and capable of maintaining sustainability into the long term.
- There was agreement that the region as a whole needed new investment to maintain its appeal but the form and source of investment was not apparent. (This may change in the near future in TNQ if major projects such as the Aquis Resort are approved).
- There was also some recognition that innovation was lacking but no clear solutions were given.
- Respondents were also fairly unified in their view that new markets needed to be developed with China and possibly India and South East Asia suggested as immediate targets. There was also a high level of agreement that more investment was needed to attract the domestic market.
- There was reasonable support for ongoing research into ecosystem specific research as well as market research.
- Many of the issues identified in the environmental scan are not under active review by respondents.
- Most private sector respondents viewed 4-6 years as being long term. Many public sector respondents regarded 10 to 15 years out as being the long term.
- Many public sector respondents identified climate change as a major issue. The private sector generally viewed climate change as being too far in the future to be concerned about.
- The attitude of many respondents to maintaining long term economic sustainability was to continue to offer improved versions of current offerings. Few respondents identified new sectors or experiences that the study region should investigate. The exceptions were some Cairns based respondents who flagged sports, food and large scale events as possible new areas while several Darwin respondents saw early indications of the growth of a 'city experience' sector.
- There was some indication that the region will need to rebalance its appeal by developing new experiences that have a focus on the experience economy.

Summary of research findings

It is apparent from the results of the literature review, environmental scan and interviews that many parts of the study region display a reactive mentality with a limited vision of the future. With a few exceptions innovation has largely stalled, yet in the past innovation had been the key driver to developing a product mix that stimulated the first wave of growth in the 1980s and 1990s. New projects such as the Aquis Resort have the potential to change this mindset.

There appears to be a reluctance to accept that past plans and policies had failed to ignite growth or that the region's traditional product mix largely based on nature based tourism has consistently failed to stimulate a new phase of growth. The need for new activities and experiences to augment the study region's current suite of environmental experiences has not been widely recognised. A small number of respondents, particularly in Darwin, alluded to this need and the potential to develop new city based products and experiences in the study region. The growth in apartment hotels is an example of how this trend is beginning to emerge in the study region. However there appeared to be a reluctance to undertake a serious search for new products and experiences or to undertake a fundamental reappraisal of the existing product mix. Unless action is taken to redress the imbalance between the region's main 'pull' factors and consumers 'push' factors the stagnation or decline evident in Figures 2 to 5 is likely to continue.

The findings reported in the discussion above indicates that the region's natural environment is currently being used in a sustainable manner although there are some concerns that insufficient resources have been allocated to the ongoing maintenance of the region's protected areas with specific examples including COTS and the control of invasive species. This situation is expected to change in the long term as the impact of climate change begins to be reflected in changes in the composition and resilience of the region's ecosystems. As resilience levels decline, adjustments will need to be made to protected area boundaries to accommodate in and out migrations of affected flora and fauna. This may not be possible in many areas given the manner in which the landscape has been developed. Carrying capacity will also be affected as the resilience of many ecosystems decline.

In terms of economic sustainability the current structure of the region's tourism industry indicates that there is a growing mismatch between consumer demand and what the region has chosen to supply. Failure to redress this problem in the near future will result in either continued stagnation at best or decline at worst.

In the long term continued reliance on the region's ecosystems to attract tourists will probably lead to continued decline particularly if climate change begins to reduce the resilience of the region's ecosystems. In this sense the ongoing health of the region's ecosystem is closely tied to the health of the region's tourism economy.

4. The relationship between change and the future

As the discussion in section 3 highlighted, there is a close relationship between how a region responds to change and its long term environmental and economic sustainability. For this reason it is critical that attention be directed to understanding the concept of change and how it will impact on future environmental and economic sustainability. Figure 1 highlighted the relationship between the present and future and the role of change as a factor that will determine the shape of the future. Used as a verb, 'change' describes a process that causes something to become different such as passing from one form or phase to another. As a noun 'change' refers to alteration such as a substitution from one thing to another. In the sense used in this paper 'change' is both a process and a force that creates a new set of tourism relationships. The term 'future' is described as the indefinite time period after the present. Thus change is a key driver in the creation of the future. The following discussion first considers the concept of change and then applies this understanding to considerations of the long term economic and environmental sustainability of tourism in the study region.

Change

Change as described above implies a shift in the current equilibrium position of the tourism industry as determined by long run demand and supply relationships. When disruption caused by a significant change takes place, new industry demand and supply relationships emerge and new equilibrium points for demand, supply and price are established but often with changed market relationships. One recent example is the growth of low cost carriers. As the price for airfares fell, overall demand increased and new airlines emerged expanding the total number of seats available globally. Long established airlines such as Ansett and Pan Am were not able to adjust to the new business environment and left the industry.

Given the importance of change and the role it has in shaping the tourism industry in the past, it is useful to consider the agents that drive change. Many of the following agents of change are overlapping, interacting and may change rapidly over time.

- *Trends*. Described as a change in the usual patterns of events that will cause some form of change in the future. In tourism terms, trends may include the manner in which people wish to experience nature and how they make holiday purchase decisions. Many trends, such as ageing populations, are apparent well before they begin to effect the tourism industry.
- *Drivers*. Defined as factors that underpin change and cause it to occur. For example, new technology has fundamentally changed the manner in which consumers purchase travel.
- *Disasters and crises*. Expected and unexpected events that disrupt the normal order of events. In recent years cyclones and floods are some of the disasters that have adversely affected northern Australia's tourism industry. In some cases such as cyclones, we know they occur but are not able to predict when and where they will strike.
- *Random events*. Described as the possibility, opportunity or probability that an unexpected and unpredicted event will occur.

- *Innovation*. Refers to the process of creating new or improved products, services, ideas, processes and technologies. The rapid growth of Apps that assist the tourist is an example of the impact of innovation. Innovation may be large scale or small scale and is an ongoing part of business.
- *Inhibitors*. Described as factors of any type (including trends, drivers, random events, policy) and from any source that causes restrictions on growth and on the ability to change. (During the period that this research was undertaken the role of the Australian dollar shifted from being an inhibitor to acting as a stimulus for inbound travel).
- *Nature*. Nature includes natural cycles and events that occur and which affect human society. Often unexpected, natural events such as earthquakes and tsunamis may have significant impacts on the tourism industry.
- *Policy*. Policy describes the responses made by governments and organisations to the previous agents of change.
- *External events*. This describes factors that are beyond the control of the tourism industry including many of the factors outlined above. These can be further classified as:
 - *Nature*. The impact of the 2011 Japanese tsunami on the number of Japanese tourists visiting Cairns in the early part of 2011 demonstrates the potential for nature to impact on tourism.
 - *International political and economic event*. The Arab Spring of 2011 had a dampening impact on arrivals in many North African nations while the GFC had a negative global impact on travel.
 - *Innovation*. Many small product innovations will collectively increase destination appeal while a large innovation such as internet booking systems may make a major impact in a relatively short period of time.
 - *National political and economic events*. Internal political disruption may have a negative impact on tourism flows.
- *Internal events*. This factor operates within the industry and affects its ability to service markets. The main types of internal factors include wage costs, service standards, interest rates, industrial awards etc.

The manner in which these agents impact on the tourism industry may be through a series of small events or more rarely though large events. A further measure for classifying future events is to class them as known knowns; unknown knowns; and unknown unknowns.

Many of the agents of change outlined above overlap however the ability to identify specific categories of change does assist in the identification and development of strategies to respond to them. In almost all societies, cultural, social, economic, political and technological environments are changing at rates that far exceeded the rate of change in the past. Just as these aspects of society have combined, or repelled, to create history and shape the present they will continue to interact to create the future. Recognising change is therefore important as is the parallel need for appropriate responses. Change is such a continuous process that it is often not recognised.

From the perspective of the study area it is important that industry and the public sector recognise the various forms that change can take and be prepared to act to either take advantage of beneficial change or reduce the impacts of adverse change. Recent beneficial changes include the recent fall in the value of the Australian dollar and increase in Chinese tourism.

Future

The view of the future outlined in Figure 1 envisages that there are multiple options for the future each based on how policy makers and in the case of the tourism industry, key stakeholders respond to the issues in the present. This view of policy formulation indicates that decisions makers will create the future based on the knowledge they have at hand. It is therefore essential that decision makers have a comprehensive understanding of the factors and issues that will affect the future and how these will alter the study regions' competitiveness.

Shaping the future

At its simplest level it can be argued that the future will be the result of the interplay of four factors:

1. The current societal framework. This consists of governmental structures, institutions, society, legal systems, culture and economy. This structure determines how solutions to problems are identified, responded to and evaluated.
2. The vision that contemporary society and industry has of the future. Without vision, response to change is ad hoc and may not deliver the desired results. Adoption of a common agreed upon vision for the future creates a set of targets that can guide how the issues of today are addressed.
3. The impacts of change on society. Impacts need to be assessed before a response is made.
4. The response to change by society. Responses in this case include policy adjustments, investment by both the private and public sectors and innovation.

The structure of the study region's future environment and economy will be determined by how it responds to change. By being aware of problems/changes/trends that are likely to occur in the future, the tourism industry will be better equipped to deal with these issues as they arise and importantly build considerations into forward planning. The key to dealing with the issues of tomorrow is to recognise that change is occurring and respond in a timely manner guided by an agreed vision of the future.

5. Meeting the challenges of the future

The purpose of this paper was to identify factors that may affect the long term environmental and economic sustainability of tourism in northern Australia. The purpose was not to develop a set of recommendations about specific actions to deal with the future but to offer some observations about how the tourism industry can respond to the challenges that the future will generate.

The following points summarise the major findings of this research:

- Between 1999 and 2012 there was no growth in the tourism industry in the study region.
- There is no substantive evidence to suggest that the study region's natural environment is being used in an unsustainable manner by the tourism industry.
- This situation may change in the long term if the impact of climate change reduces the resilience of the region's ecosystems.
- The long term economic sustainability of the region's tourism industry is being adversely affected by the growing mismatch between consumer demand and what the region has chosen to supply.
- In the long term, continued over reliance on the region's ecosystems to attract tourists is likely to lead to no or little growth in the future.
- New investment targeted at new markets and offering new experiences will be required to overcome the stagnation experienced in the period between 1999 and 2012.
- There is little evidence that stakeholders realise the need for new activities and experiences to augment the study region's current suite of environmental experiences.
- The ongoing health of the region's tourism economy is closely tied to the health of the region's ecosystem.

Factors that have led to the findings outlined above include:

- Many parts of the study region continue to display a reactive mentality with a limited vision of the future.
- With a few notable exceptions there has been limited innovation in recent years.
- There appears to be a reluctance to accept that past plans and policies had failed to ignite growth.
- The region's traditional product mix largely based on nature based tourism has consistently failed to stimulate a new phase of growth.
- The need to develop new non environment centred activities and experiences has been largely neglected.

It is apparent that there is a major gap between the views of key industry stakeholders and the results outlined above. Before considering a way forward it is worth considering the following observations.

- The future rarely takes the form predicted.
- Little thought has been given by the Australian tourism industry to many of the factors that will impact on the future environmental and economic sustainability and competitiveness of the tourism industry.
- Without proactive action, the industry will continue to find itself in the position of reacting to challenges, not taking advantage of new opportunities.

The challenge for stakeholders is to consider how the challenges of the future should be confronted.

In the introduction to this report five questions were asked and are repeated here:

1. Why has anticipated growth failed to occur?
2. Is further growth achievable?
3. Is growth necessarily the best course for the future?
4. What externalities will have the greatest impact on tourism markets in the future?
5. If growth is the most desirable course for the future, what strategies are required to maximise the study region's comparative and competitive positions?

The paper did not set out to answer these questions—that is a role for the region's stakeholders. It is worth noting, however, that a destination or region that has relatively stable tourism numbers, is environmentally sustainable, and is able to maintain a high yield, may also be classed as successful.

Other issues that arise from this research include:

- There is a need to consult communities involved in the tourism industry to determine the level of support for increased tourism if further growth is retained as a policy objective.
- Are tourism growth and economic and environmental sustainability compatible objectives?
- Will the impact of climate change degrade existing areas that are currently tourism draw cards?
- Will future generations of tourists be satisfied with the current range of tourism offerings?
- Is the data currently collected sufficiently robust to understand what is occurring at the destination level and able to facilitate predictions on what might happen in the future?
- Is there a need to build new research capabilities to identify future opportunities and threats and pass these back to the industry?
- Is sustainable tourism achievable in areas where other industries such as mining are able to generate greater economic returns?

The way forward

Given that current policies and strategies have not succeeded in stimulating growth over the last 12 years it is apparent that a reappraisal of the long term direction of the study region's tourism industry is required. The key steps required in such a reappraisal are to:

First, determine a vision for the tourism industry based either on maintaining the status quo or embarking on growth. Answering the five questions posed above will assist in this process.

Second, establish a mechanism for co-ordinating tourism strategies developed by the public and private sectors to assist in this process.

Third, establish a research group to provide region relevant analysis of the tourism industry.

Fourth, develop a scorecard system that can be used to monitor the industry and how it responds to changes in policy and market forces.

Conclusions

The ability of the study region's tourism industry to respond to the challenges it now faces will determine its future success. To date the responses to past change have not been able to generate growth as highlighted by Figures 2 to 5. Continuing to promote the current suite of experiences is unlikely to stimulate future growth. It is obvious that the strategies of the past need to be re-evaluated and decisions made on what type of tourism industry the region wishes to support in the future. It is also apparent that new products are required with the experience economy providing some potential candidates.

Understanding the role of change is a fundamental challenge. One method for developing an understanding of change and its future impact on tourism is to establish a region-wide monitoring system able to produce regular reports based on data collected in the region as well as externally. The development of an annual or biannual scorecard is one tool that should be central to any monitoring system.

About the author

Bruce holds the position of Professor of Marketing and Tourism Management at the Cairns campus of James Cook University, Australia. He gained his PhD from the University of Queensland where he lectured between 1992 and 2003. Prior to his academic career, Bruce worked as a high school teacher and as a public servant. He also has an M. Ec (Regional Planning) awarded by James Cook University. He is actively engaged in climatic change research and the role of tourism in regional development. Other active areas of research include rainforest tourism, tourism in cities, tourism in agricultural regions, military heritage, tourism transport, tourism aviation, crisis management, heritage and ecotourism. His current book project focuses on rainforest tourism from a global perspective. He holds Visiting Professorships at Bournemouth University in the UK and Taylors University Malaysia and has authored over 250 journal articles, book chapters and conference papers on a range of tourism related issues. He supervises seven PhD students whose research includes tourism in agricultural regions, city tourism, backpacking and community based ecotourism.

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